

A M E N D M E N T S

Please amend the subject application as set forth below.

In the Claims

Cancel claims 60 through 63 inclusive and 65 without prejudice.

Pursuant to 37 CFR 1.121, a complete listing of all claims as amended of the subject application is set out below.

Claims 1 – 63 and 65 (canceled).

Claim 64 (previously added and previously amended): A method of determining the identity of one or more nucleotide bases at a plurality of specific positions in one or more nucleic acid molecules of interest, comprising:

(a) treating a sample comprising the one or more nucleic acid molecules of interest, if the nucleic acid molecules of interest comprise double-stranded nucleic acid, so as to obtain unpaired nucleotide bases spanning the specific positions, or directly employing a sample comprising the one or more nucleic acid molecules of interest in step (b) if the nucleic acid is single-stranded;

(b) contacting the sample from step (a) with a plurality of different oligonucleotide primers, wherein:

(i) each such different oligonucleotide primer hybridizes, under high stringency hybridization conditions, to a corresponding different stretch of nucleotide bases present in the nucleic acid molecules of interest which is immediately adjacent to the specific position of a nucleotide base to be identified with that oligonucleotide primer, so as to form a duplex such that the nucleotide base to be identified is the first unpaired base of the nucleic

acid molecule of interest immediately downstream of the 3' end of the oligonucleotide primer; and

(ii) each different oligonucleotide primer comprises a corresponding different affinity moiety, the oligonucleotide primer comprising the affinity moiety being capable of hybridizing with a nucleic-acid template and undergoing a nucleic acid template-dependent primer extension reaction with terminators of a terminator reagent, the affinity moiety permitting affinity separation of the extended oligonucleotide primer from the terminator reagent;

(c) contacting the duplexes from step (b) with a terminator reagent free of dATP, dCTP, dGTP, and dTTP and comprising four different terminators of a nucleic acid template-dependent primer extension reaction, each terminator comprising a different detectable label corresponding to the terminator, wherein one of the terminators is complementary to a nucleotide base to be identified by each of the oligonucleotide primers, wherein the contacting is carried out in a primer-extension reaction medium under conditions sufficient to permit a template-dependent primer extension reaction which incorporates the complementary terminator onto the 3' end of each of the different oligonucleotide primers to thereby extend the 3' end of each of the oligonucleotide primers by one terminator;

(d) affinity separating the respective extended oligonucleotide primers from primer-extension reaction medium by causing each of the extended oligonucleotide primers to contact an affinity group attached to a solid support, such affinity group being complementary to the affinity moiety incorporated in the oligonucleotide primer; and

(e) determining the presence and identity of the nucleotide base at each of the respective specific positions in the one or more nucleic acid molecules of interest by detecting the detectable label of the terminator incorporated at the 3' end of each of the affinity separated extended oligonucleotide primers.

Claim 66 (previously added): A method according to claim 64, wherein the terminators comprise dideoxynucleotides.

Claim 67 (previously added): A method according to claim 66, wherein the terminators comprise one or more of ddATP, ddCTP, ddGTP, ddTTP or ddUTP.

Claim 68 (previously added): A method according to claim 64, wherein the terminators comprise arabinoside triphosphates.

Claim 69 (previously added): A method according to claim 64, wherein each of the detectable labels is an isotopically labeled moiety, a chromophore, a fluorophore, a protein moiety, or a moiety to which an isotopically labeled moiety, a chromophore, a fluorophore, or a protein moiety can be attached.

Claim 70 (previously added): A method according to claim 64, wherein each of the different detectable labels is a different fluorophore.

Claim 71 (previously added): A method according to claim 64, wherein the primer-extension reaction medium further comprises pyrophosphatase.